UNITED STATES MARINE CORPS
Basic Officer Course
The Basic School
Marine Corps Combat Development Command
Quantico, Virginia 22134-5019

B8602

PREVENTION AND TREATMENT OF FIELD-RELATED INJURIES

Student Handout

1. **Introduction**. A wide variety of threats to your health and that of the Marines you will be charged to lead can be prevented or treated successfully. The information provided here and in the accompanying lecture will prepare you for dealing with field-related injuries at Quantico and throughout the world.

2. **Ticks**. Ticks can spread infectious diseases; so the problem with a tick bite is not from the bite itself, but from the organisms that the tick can carry. The organisms causing two infectious diseases, Rocky Mountain spotted fever and Lyme disease, are commonly spread by ticks.

a. Rocky Mountain spotted fever occurs within seven to ten days after a bite by an infected tick. Its symptoms include nausea, vomiting, headache, weakness, paralysis and even cardiorespiratory collapse. Rocky Mountain spotted fever occurs all over the United States, not just in the Rocky Mountain area.

b. Lyme disease has received much publicity recently. It is, after AIDS, the second most rapidly growing infectious disease in the United States. Originally seen only in Connecticut, Lyme disease has now been reported in 35 states. Lyme disease is caused by a bacterium that is carried by a tick. Symptoms begin about three days after being bitten by an infected tick. A progressive red rash develops and may spread to several parts of the body. After a few more days or weeks, painful swelling of the joints, particularly the knees, occurs. Lyme disease may be confused with arthritis and may result in permanent disability. However, if it is recognized and treated promptly with antibiotics, the patient may recover completely.

c. Marines who are bitten by ticks are not aware they have been bitten - the bite is painless. The tick attaches itself to the skin, sucks blood from the host and becomes swollen. Infections are spread through the saliva of the tick, which is injected into the skin at the time the tick attaches itself.

d. Prevention

(1) Use insect repellent on target areas such as under the arms or the area near the top of the boot.

(2) Make sure sleeves are rolled down and boots are bloused.

e. Treatment

(1) It takes at least 18 hours for the infection to be transmitted from the tick to the person it has bitten, so if your are removing a tick, you should proceed carefully and slowly. Do not attempt to suffocate the tick with gasoline, vaseline, or burn it with a lighted match. (You will probably only burn yourself!) These remedies were once thought to be effective by making the tick back out of the skin on its own. However, they do not work, and there is some evidence that by irritating the tick, you will cause it to put more infecting bacteria into the skin.

(2) Physically remove the tick. Using fine tweezers, grasp the tick by the body and pull it straight out of the skin. A slow, steady pull is important; the tick should release its hold on the bite area so the whole tick is removed. Even if the mandible portion of the tick is left embedded in the skin, the source of the infecting organisms has been removed. Once the tick is removed, use disinfectant on the area. Try to avoid handling the tick with your hands.

(3) If your must use your hands, shield yourself with a piece of tissue paper. Wash your hands immediately. The bacteria can be transmitted directly through your skin.

(4) Normally, any individual bitten by a tick should be seen by a physician. Our training regimen at The Basic School and the large number of bites incurred by students and staff alike preclude this. Remember that the symptoms of Rocky Mountain spotted fever and Lyme disease do not occur until a few days after being bitten. If you feel the onset of symptoms, report to the clinic AT ONCE.

3. **Chiggers**. Chiggers are extremely small insects, not visible to the human eye. They are found in grassy, wooded areas and are more abundant in the summer months, particularly from April through September. The primary symptoms of chiggers are

small welts on the skin and intense itching.

a. Prevention

(1) Use insect repellent on target areas, especially the lower legs.

(2) Keep sleeves rolled down and boots bloused.

b. Treatment

(1) The best care for chigger bites is to wash the area with hot soapy water to prevent infection.

(2) Application of clear fingernail polish may also help relieve the itching.

4. **Human and Animal bites**. Human bites should not be taken lightly; the wound resulting from a bite may be nothing more than a seemingly minor puncture wound, but it may also involve badly lacerated tissue. The human mouth is extremely dirty and contact with an open wound may cause massive contamination.

a. The primary concern in all animal bites is the possibility of the development of rabies, which is fatal. If the biting animal can be captured, it should be impounded for observation.

b. Emergency treatment. The emergency treatment for both human and animal bites:

(1) Wash the wound with water and soap.

(2) Cover the wound with a sterile, dry dressing.

(3) Immobilize the area with a splint or bandage.

(4) Get the casualty to a medical facility as soon as possible.

5. **Spider and Scorpion Bites**. Spiders are relatively abundant in the local area. The two most commonly seen species are the black widow and the brown recluse.

a. Black widow. The black widow is small (one inch in length) and has a small black body with a yellow/orange "hour glass mark" on its underside. Symptoms of a bite are:

(1) No apparent mark

(2) Neurotoxic poison resulting in muscle cramps (especially the abdomen); tightness in the chest/difficulty breathing; nausea; vomiting, and sweating.

(3) Although painful symptoms following the bites are severe, death is not common (63 recorded in 10 years, from 1950 to 1960). A specific antivenin is available, but its use is accompanied by a high incidence of side effects. Consequently, the antivenin is used only for very severe bites, the aged or very feeble, and children under the age of 5.

(4) Treatment for black widow bites is basic life support for the victim in respiratory distress. Much more commonly, the victim will require relief from pain. If the site of the bite can be identified, putting a cold compress against it may slow the absorption of toxin. Transport the victim to a medical facility as soon as possible. If possible, bring the spider to the facility with you.

b. Brown recluse. The brown recluse is smaller than the black widow, being only 1/4 to 1/2 inch long. It is dull brown in color with a violin-shaped marking on the back of the body. Symptoms of a bite are:

(1) Bite site red and swollen.

(2) Blister forming on the bite site.

(3) Fever.

(4) After a few days, a scab will form on the bite site, later leaving an ulcer or possibly gangrene.

(5) Treatment. Treatment for brown recluse bites is the same as for black widow bites.

c. Scorpions. The common scorpion, as found in American and Asian deserts, is two to four inches in length and features a stinger in its tail. The symptom of its sting is localized pain at the sting site; treatment is the same as for spider bites.

6. **Bee Stings**. Bees, wasps, and yellow jackets are commonly found in the Quantico area during the summer months. Unless the individual is allergic to a specific species, the sting is usually more of a nuisance than an emergency.

a. Symptoms. Local pain at the site of the sting followed by swelling are the usual indicators.

b. Treatment

(1) If the stinger remained embedded after the attack, scrape it off without injecting additional venom.

(2) Wash the sting site with soap and water, and use ice to reduce pain.

(3) If extremities are bitten, remove rings or watches to allow for swelling.

(4) Any serious reactions indicate a possible allergic reaction; individuals so affected should seek medical attention.

7. **Snake Bites**

a. There are two families of poisonous snakes in the United States. The Crotalidae includes rattlesnakes, pygmy rattlers, copperheads, water moccasins, and cottonmouths, and the family of the Elapidae has only one representative: the coral snake. The venom of the Crotalidae is hemotoxic; it acts on the lining of the small blood vessels, enabling blood to escape into the tissues. The venom of the coral snake is neurotoxic; it attacks the body's nervous system. Most snake bites occur between April and October, when the animals are active.

b. When you encounter a snake bite, it is extremely important to identify whether envenomization (deposit of venom into the wound) has occurred. In one report of all snake bites throughout the United States, 27 percent were found to have had no envenomization at all, and an additional 37 percent had only minimal envenomization. Thus, only one-third of snake bites in general result in significant local or systemic injuries. There are several reasons why envenomization does not occur. Most commonly, the snake recently has struck another animal and has exhausted its supply of venom.

c. Identification. If at all possible, the identification of the biting reptile should be established. In some cases, recognition is not easy because identifying characteristics vary with locality; this is especially true of color. When identifying the reptile, these points should be checked:

(1) Arrangement of teeth. The presence of fangs immediately labels the reptile as poisonous.

(2) Rattle. The presence of rattles immediately identifies the rattlesnake. However, rattles are frequently lost and their absence need not rule out this family of vipers.

(3) Sensory pits. Certain groups have a sensory organ between the nostrils and eyes placed on each side of the head. Snakes that have this organ are known as "pit vipers."

(4) Color and pattern of coloration. Since color and pattern change with locale, age, and species, they are not always reliable but do help in identification and should be fixed in mind.

(5) The shape of the head, as well as the subcaudal plates, will generally characterize harmless snakes from poisonous.

(6) The shape of the eyes also tells a harmless snake from a poisonous snake.

d. Symptoms of snakebites

(1) Hemotoxic. The bite from the Crotalidae (rattlesnakes, copperheads, etc.) is hemotoxic. Symptoms include tissue swelling at the site of the bite and gradually spreading to surrounding areas. The swelling may be so severe as to burst the skin. Other symptoms are:

(a) Excruciating pain at the site of the bite

(b) Severe headache and thirst caused by internal bleeding

(c) Puncture marks

(d) Shock

(e) Respiratory distress

(3) Neurotoxic. The bite from the Elapidae (cobra, coral, krait, seasnake, etc.) is primarily neurotoxic and affects the nervous system. It has the following symptoms:

(a) Irregular heartbeat, followed by generalized weakness and exhaustion, terminating in shock.

(b) Severe headache, dizziness, blurred vision or blindness, hearing difficulty, mental disturbances such as incoherent speech, stupor, and mental confusion.

(c) Muscular incoordination (such as the inability to reach out and pick up an object), muscle spasms and twitching.

(d) Difficult or labored breathing.

(e) Numbness and tingling of the skin, particularly of the lips and the soles of the feet; excessive perspiration.

(f) Chills and fever.

(g) Nausea, vomiting, and diarrhea.

(h) Extreme pain is NOT characteristic of neurotoxic venoms.

e. Emergency treatment for snake bites

(1) Calm and reassure the patient. Get the patient to lie down and keep quiet. These steps will decrease the spread of any venom through the system. Patients will often vomit, from anxiety as well as from systemic effects of the poison. Never give the patient alcohol.

(2) For victims demonstrating symptoms of hemotoxic or neurotoxic snake bites:

(a) Locate the bite area; clean it gently with soap and water or a mild antiseptic.

(b) Wrap soft rubber tubes or bands two to four inches above and below the fang marks, and tighten them just enough to occlude the venous circulation, not the arterial circulation. The pulse should not disappear. The purpose of this maneuver is to limit the spread of the venom.

(c) Remove constrictive clothing and jewelry to allow for swelling. Loosen the constricting bands as necessary to allow for swelling.

(d) Do not wrap the limb in ice or put ice directly on the skin. Cool the bite area, do not freeze it.

(e) Immobilize the extremity with a splint.

(f) If the snake has been killed, as it often has, bring it with you. Identification of the snake is extremely important in administering the correct antivenin.

(g) Transport the patient promptly to the hospital. Notify the hospital that you have a snakebite patient, and, if possible, describe the snake.

(3) If the patient shows no signs of envenomization, the only treatment necessary is that of basic life support, putting a clean dressing over the suspected bite area, and utilizing venous constricting bands above and below the bite, approximately two to four inches. Do not "cut and suck" poison from a bite as the stress and shock from this "surgery" usually results in more complications than the bite alone would have caused.

(4) All suspected snakebite victims should be brought to a hospital, whether they show immediate signs of envenomization or not. If you work in an area where poisonous snakes are known to exist, you should always know the location

of the nearest facility where antivenin is available.

(5) At Quantico, the following poisonous snakes are found:

(a) Timber rattlesnake (infrequently seen)

(b) Copperhead (most common, three to five feet long)

(c) Water moccasin (southern Virginia, infrequently spotted around Quantico)

8. **Heat Casualties**

a. There are six types of heat problems.

(1) Sunburn. A bad case of sunburn can incapacitate a Marine. Be sure to wear protective clothing even if you think it is "too hot" to do so.

(2) Prickly heat rash. Rashes take a long time to heal, particularly in the tropics. The itching and consequent scratching can lead to infection.

(3) Fungus infections. Fungus infections will leave open sores on your feet and groin. The scratching will lead to open ulcers, infection, and disease.

(4) Heat cramps. Heat cramps will result in painful cramps in the muscles. Heat cramps are also considered to produce a "heat casualty."

(5) Heat exhaustion. More serious than heat cramps, heat exhaustion is also considered to produce a "heat casualty."

(6) Heat stroke. The most serious of the heat-related problems, heat stroke is the total collapse of the body's heat regulatory mechanism. It is the most serious of the "heat casualties."

b. The symptoms and treatment of heat casualties are:

(1) Heat cramps. Heat cramps are caused by a lack of electrolyte (salt) in the system. They can be brought on when Marines who have been sweating profusely suddenly drink a large quantity of cold water.

(a) Symptoms include muscle cramps, particularly in the legs and abdomen, profuse sweating and faintness.

(b) Treatment for heat cramps consists of giving the victim small sips of cool water, removing the victim to a cool or shaded area, and massaging cramped muscles. If indications of a more serious condition are present, transport the victim to medical attention.

(2) Heat exhaustion. Heat exhaustion is caused by the pooling of blood in the capillaries close to the surface of the skin. Exposure to high temperatures and humidity, heat directly from the sun and excessive activity by unacclimatized individuals are primary contributors to heat exhaustion.

(a) Symptoms of heat exhaustion include rapid, shallow breathing, dizziness, blurred vision and pale, clammy skin. The Marine will normally sweat profusely with this condition.

(b) Treatment involves removing excessive clothing and placing the victim in a cool, shaded area. The victim may be fanned or sprinkled with water to keep cool. If conscious, small sips of water may be given. The victim should also be treated for shock, and medical attention sought should indications of a more serious problem exist.

(3) Heat stroke. Heat stroke is a serious malfunction of the body's heat regulatory mechanism. Heat stroke may be brought on by the same environmental conditions which cause heat cramps or heat exhaustion.

(a) Symptoms of heat stroke include shortness of breath, weakness, headache, dizziness, loss of appetite and nausea. The victim will also experience muscle twitching leading to convulsions; dilated pupils; lack of sweating; full, fast pulse; delirium and eventual loss of consciousness. The major difference in symptoms between heat exhaustion and heat stroke is that during heat stroke the victim will not sweat and will have hot, dry, flushed skin. Body temperatures may range from 104 to 108 degrees. DEATH WILL OCCUR IF THE BODY TEMPERATURE IS NOT LOWERED.

(b) Treatment for heat stroke consists primarily of lowering the body temperature as quickly as possible. Take the following actions immediately:

1 Send for medical assistance.

2 Remove the victim to a cool, shaded area.

3 Loosen clothing and equipment.

4 Apply water or ice to the entire body, fanning the victim as much as possible.

5 Do not attempt to force the victim to drink.

6 Ensure that the airway remains open and that the victim continues to breathe.

(c) Remember: Time is of the essence! Heat stroke is a true medical emergency with a 20% mortality rate.

c. The following measures should reduce the potential for, and severity of, heat casualties:

(1) Clothing. Even in very hot weather, clothing must be worn to avoid the absorption of solar energy. Loose-fitting, light-colored clothing is preferable. Marines should loosen their equipment whenever possible to allow for air circulation.

(2) Water. Water should always be available, and personnel should take small sips frequently. "Water rationing" or "water discipline" should never be practiced if at all possible. Since the thirst urge only identifies two-thirds of the body's needs, personnel should drink more than they feel is necessary. If possible, perform strenuous tasks during the morning or evening. The average diet provides more than enough salt; therefore, salt tablets should not normally be taken.

(3) Command attention. Personnel must be supervised and instructed as to hot weather considerations. Enforced drinking of that extra one-third of the body's requirement may be utilized. **Teach your Marines to store water in their bodies, not in their canteens**.

d. Wet bulb globe temperature (WBGT) indexes. The "wet bulb" is our source for determining heat conditions. The various heat conditions are normally associated with flag colors. It is important to have a standardized system to help a commander determine appropriate training.

(1) The four environmental factors that make up the WBGT index are:

(a) Air movement

(b) Air temperature

(c) Relative humidity

(d) Radiant heat

(2) The WBGT index is measured with psychrometer, which is a device consisting of two thermometers. The bulb of one is kept wet so that the cooling which results from evaporation makes it register a lower temperature than the dry one. The difference between the two readings constitutes a measure of the dryness of the atmosphere. Basically, the higher the humidity and the lower the air movement, the less effective sweating will be in cooling the body.

(3) The WBGT index gives us a range of conditions which are commonly referred to as "flag" conditions. All training during the period 1 May through 30 September will be conducted in accordance with the following heat/flag indexes:

CONDITION	CONDITION	INDEX	PHYSICAL ACTIVITY RESTRICTIONS
Alfa	Green	8O.O-84.9	Heavy exercise for unacclimated personnel should be conducted with caution and under constant supervision.
Bravo	Yellow	85.0-87.9	Strenuous exercises, such as hikes, close order drill and obstacle courses suspended for

			unacclimatized personnel.
Charlie	Red	88.0-89.9	All physical training halted. Outdoor classes in direct rays of the sun shall be avoided for personnel not thoroughly acclimatized. Those thoroughly acclimatized may perform limited activity not to exceed six hours per day.
Delta	Black	90.0 and above	All strenuous activity halted.

9. **Cold Casualties**

a. Principles of cold weather

(1) "C" - Keep it Clean. The air-trapping capability of clothing is reduced if it is dirty or oily because the weave of the material, in which pockets of air are trapped, becomes clogged.

(2) "O" - Avoid Overheating. The tendency of inexperienced personnel in cold weather is to wear every article of clothing available. This becomes a problem particularly during strenuous activity such as marches, offensive tactics, or even digging in. Overheating causes a chain reaction--sweating, rapid cooling because of wet clothing, and, inevitably, the onset of hypothermia. Before the body begins to perspire, loosen the layers of clothing at the closures. If this does not cool the body down, remove a layer. However, it is important to keep the windproof layer (field jacket or parka) on and adjust the layers underneath (long underwear, utility jacket, field jacket liner). Remember, it is better to be slightly cool than too warm.

(3) "L" - Wear clothing Loosely and in Layers. Clothing and footwear that are too tight restrict the blood circulation and increase the danger of frostbite. However, if they are worn too loosely they will lose their insulating ability. When clothes are layered, air is trapped and warmed. This provides excellent insulation for the body. Therefore, several layers of medium weight clothing are more effective than one heavy garment.

(4) "D" - Dry clothing ensures maximum effectiveness as an insulator. Small items of clothing such as socks, gloves or mitten inserts, and headgear can be dried by placing them next to the skin at the waist. Body heat will dry them in a matter of hours. Larger items can be dried overnight by placing them in the sleeping bag with the individual.

b. Preventive measures used in cold weather. The human body is designed to maintain a core temperature of 98.6 degrees. If the environment is cooler than the body, heat leaves the body by seven means:

(1) Radiation. This is the loss of heat into still air. The head and neck are the body's most efficient radiators. Heat loss from an uncovered head can be up to 1/2 of the body's total heat production at 40F and up to 3/4 at 5F.

(2) Conduction. Conduction is the loss of heat due to contact with an object which is colder than the body. Conduction of heat from skin to metal is very rapid and can actually cause bonding of skin to the metal. Sitting on ice, snow, or a cold rock will cause conductive heat loss.

(3) Convection. The body continually warms (by radiation) a thin layer of air next to the skin to a temperature nearly equal to that of the skin. A cooling effect occurs when a brisk wind removes this layer.

(4) Evaporation. The evaporation of sweat from the skin accounts for a substantial heat loss.

(5) Respiration. Inhaling cool air and exhaling warm air contribute to heat loss.

(6) Wind chill. Wind has an additional cooling effect: a mild temperature of 40 degrees F with a wind blowing at 25 mph produces an equivalent wind chill temperature of 15 degrees F.

(7) Water chill. The thermal conductivity of water is 32 times as great as that of still air.

d. Actions of small unit leader

(1) Closely observe personnel who have previously become cold casualties. There is a tendency for certain persons to succumb to the effects of the cold, and these individuals, once they become cold weather casualties, may do so again.

(2) Diet is important. The body needs carbohydrates to fuel its heat generation mechanism. Hot meals, consisting of 4500 calories per day, are considered essential for severe cold weather.

(3) Water is also important. Ensure your people drink a minimum of 3 1/2 to five quarts per day. As much of this as possible should be hot liquids, such as hot chocolate, broth, or tea.

(4) Alcoholic beverages should be avoided. Alcohol dehydrates the body and reduces the body's core temperature. Although alcohol may initially make an individual feel "warm," this is only superficial and ultimately this warmth will be drawn from the core of the body, lowering overall temperature.

e. The importance of individual skills should not be underestimated. Adopt a rigorous training and education program before a cold weather deployment.

f. Detailed supervision is required at all echelons of command to ensure Marines adhere to standard practices when operating in cold weather. Preventing Marines from overdressing or standing around in the cold doing nothing while dressed lightly for movement are just two considerations.

g. Cold weather injuries

(1) Frostbite. Frostbite is the freezing of flesh. Frostbite is caused when the body restricts blood flow to the appendages to conserve core heat. The surface tissues actually freeze, and with continued chilling, the frozen area extends to deeper levels.

(a) Symptoms

1 Sensations of cold or pain.

2 Complete loss of sensation in the affected area. The sensation is described as feeling "like a stump," "like a block of wood," or "cube-like."

3 Tissues become hard and red, then turn white, white-yellow or mottled blue-white, and cold.

4 Swelling may occur, and blisters may form on the affected area.

Note: Frost nip or superficial frostbite may affect the nose, checks and ears, and may appear as a white patch on the skin.

(b) Treatment. Rewarming of the frostbitten extremity is rarely done in the field. You can cause a great deal of further injury to a frostbitten part by attempts to rewarm it. Never try to heat a frostbitten part with something warm such as the exhaust from a vehicle engine or, even worse, an open flame. This will only cause further damage to the fragile tissues. Rewarming is best accomplished under controlled circumstances in the emergency department. If prompt hospital care is not available and you feel rewarming must be done in the field, it is best accomplished in a warm-water bath. Immerse the frostbitten part in water. The water temperature should never exceed 112 degrees F. Keep the frostbitten part in the water bath until it feels warm and the color (redness) has returned. Do not attempt rewarming if there is any chance that the affected part may freeze again. If a warm water bath is not possible, follow the following steps.

1 Remove the casualty to a heated area such as a warming tent or vehicle.

2 Remove or loosen constrictive clothing to allow the blood to circulate freely to the affected area.

3 Utilize either the individual's own body heat or that of a buddy to slowly warm the affected area. The armpits and groin area are good places to warm a frostbitten extremity gradually. Do not rub snow on a frostbitten area, or immerse it in boiling water. Open flames are also dangerous, as the skin may accidentally get burned because there is no sensation.

4 For deep frostbite which penetrates below the upper layers of skin and into the muscles, transport the victim immediately to a medical facility. Do not attempt to thaw the affected area.

(2) Trench or immersion foot. Trenchfoot is caused by moisture trapped inside a boot which waterlogs the tissues. It is commonly caused by vapor barrier-type boots ("Mickey Mouse" boots). When these boots are worn for long periods of time without changing socks, the feet become moist and sweaty.

(a) Symptoms. Pale, wrinkled, loose, spongy, cold, swollen and waxy skin on the feet. Eventual discoloration will occur as the feet develop gangrene.

(b) Treatment. Keep the feet dry. Change socks often and air dry or blot the moisture off.

Keep the feet warm. Change socks often and use foot powder to absorb excess moisture. Only wear vapor barrier boots when absolutely necessary, and once afflicted, walk only as much as necessary.

(3) Hypothermia. The first response of the body to cold is the constriction of the blood vessels of the skin, causing a decrease in the amount of heat transported by the blood to the skin. The body does this to keep what heat is being generated for the body core, which houses the vital organs. Hypothermia is commonly brought on when an individual falls into an ice-cold stream or river or is exposed to the elements without adequate clothing. If the body cannot produce enough heat to overcome what is lost through evaporation of the moisture in the wet clothing, it will begin to reduce its core temperature.

(a) Symptoms

1 Temp 99 to 96F: Shivering becomes intense and uncontrollable. The ability to perform complex tasks is impaired.

2 Temp 95 to 91F: Violent shivering persists. The victim has difficulty speaking and is sluggish in his thinking. Furthermore, the victim may be stubborn, hallucinating, and extremely fatigued. Apathy may begin to set in.

3 Temp 90 to 86F: Shivering decreases and is replaced by strong muscular rigidity. Exposed skin may become blue or puffy.

4 Temp 85 to 81F: Victim becomes irrational, loses contact with reality, and drifts into a stupor. Pulse and respiration are slowed.

5 Temp 80 to 78F: Victim loses consciousness, reflexes cease to function, and the heartbeat becomes erratic.

6 Temp Below 78F: Failure of the cardiac and respiratory control centers in the brain. Death.

(b) Treatment

1 Evacuate the individual to a medical facility as soon as possible. If transportation is not immediately available, move the individual to a warming shelter or at least out of the elements.

2 Remove all wet clothing and replace with dry items.

3 Warm the body gradually as with frostbite. The body is not producing enough heat so an external source must be provided. Place as much insulation between the individual and the ground as possible to avoid conductive heat loss. If there is no other shelter use a sleeping bag.

4 Continuously monitor the victim's respiration and heartbeat.

5 Administer CPR, if required, to maintain circulation.

6 Warm liquids in small sips may be given if the victim is conscious.

10. **Conclusion**. Teamwork, unit training, and thorough supervision can eliminate or greatly reduce the frequency of field-related injuries. When they do occur, make sure you and all your Marines know exactly what to do.